Listing of the Claims

1. (currently amended) A silicon nitride film formation method, comprising:

heating a substrate to be subjected to film formation to a substrate temperature;

heating a wire to a wire temperature;

supplying silane, ammonia, and hydrogen gases to the heating member, wherein excess hydrogen gas is supplied in an amount sufficient to form a substantially 100% conformal silicon nitride film on the substrate, wherein the conformal silicon nitride film has a highly uniform thickness providing about 100% step coverage.

2. (original) The method of claim 1, wherein the substrate temperature is in the range of about 200 - 400°C.

3. (original) The method of claim 1, wherein the wire temperature is in the range of about 1800 - 2100°C.

4. (original) The method of claim 1, further comprising conducting the silicon nitride film formation method at a pressure in the range of about 10 - 50 millitorr.

5. (currently amended) A method for forming a silicon nitride film, comprising:

providing a process chamber;

heating a substrate contained within the process chamber to a substrate temperature;

heating a wire contained within the process chamber to a wire temperature;

supplying a silicon precursor material to the process chamber;

supplying a nitrogen precursor material to the process chamber;

supplying a process gas to the process chamber in an amount sufficient to form a substantially 100% conformal silicon nitride film on the substrate, wherein the conformal silicon nitride film has a highly uniform thickness providing about 100% step coverage.

6. (original) The method of claim 5, wherein the silicon precursor material is selected from the group consisting of SiH_4, Si_2H_6, and SiH_2Cl_2.

7. (original) The method of claim 5, wherein the nitrogen precursor material is selected from the group consisting of N_2 and NH_3.

8. (original) The method of claim 5, wherein the process gas comprises hydrogen.

9. (original) The method of claim 5, wherein the substrate temperature is in the range of about 200 - 400°C.

10. (original) The method of claim 5, wherein the wire temperature is in the range of about 1800 - 2100°C.

11. (original) The method of claim 5, further comprising conducting the silicon nitride film formation method at a pressure in the range of about 10 - 50 millitorr.

12. (withdrawn) Apparatus for forming a silicon nitride film on a substrate, comprising:

a process chamber;

a substrate heater positioned within said process chamber, said substrate heater configured to receive the substrate;

a wire positioned within said process chamber;

a supply of silicon precursor material operatively associated with said process chamber;

a supply of nitrogen precursor material operatively associated with said process chamber; and

a supply of process enhancement gas operatively associated with said process chamber.

13. (withdrawn) The apparatus of claim 12, wherein the silicon precursor material is selected from the group consisting of SiH_4, Si_2H_6, and SiH_2Cl_2.

14. (withdrawn) The apparatus of claim 12, wherein the nitrogen precursor material is selected from the group consisting of N_2 and NH_3.

15. (withdrawn) The apparatus of claim 12, wherein the process gas comprises hydrogen.

16. (withdrawn) Apparatus for forming a silicon nitride film on a substrate, comprising:

a process chamber;

heating means positioned within said process chamber for heating the substrate to a substrate temperature;

a wire positioned within said process chamber;

means for providing a silicon precursor material to said process chamber;

means for providing a nitrogen precursor material to said process chamber; and

means for supplying a process enhancement gas to said process chamber.

17. (withdrawn) The apparatus of claim 16, wherein said means for providing a silicon precursor material to said process chamber comprises means for providing SiH_4 to said process chamber.

18. (withdrawn) The apparatus of claim 16, wherein said means for providing a nitrogen precursor material to said process chamber comprises means for providing NH_3 to said process chamber.

19. (withdrawn) The apparatus of claim 16, wherein said means for supplying a process enhancement gas to said process chamber comprises means for providing H2 to said process chamber.

20. (previously presented) The method of claim 1, wherein the conformal silicon nitride film has a highly uniform thickness.

21. (previously presented) The method of claim 1, wherein the conformal silicon nitride film has a highly uniform thickness on all side portions.

22. (previously presented) The method of claim 1, wherein the conformal silicon nitride film exhibits step coverage of very small-scale features on the substrate.

23. (canceled)

24. (previously presented) The method of claim 5, wherein the conformal silicon nitride film has a highly uniform thickness.

25. (previously presented) The method of claim 5, wherein the conformal silicon nitride film has a highly uniform thickness on top, bottom, and side portions.

26. (previously presented) The method of claim 5, wherein the conformal silicon nitride film exhibits step coverage of very small-scale features on the substrate.

27. (canceled)